

Compact All Solid State Oceanic Inherent Optical Property Sensor, Phase I

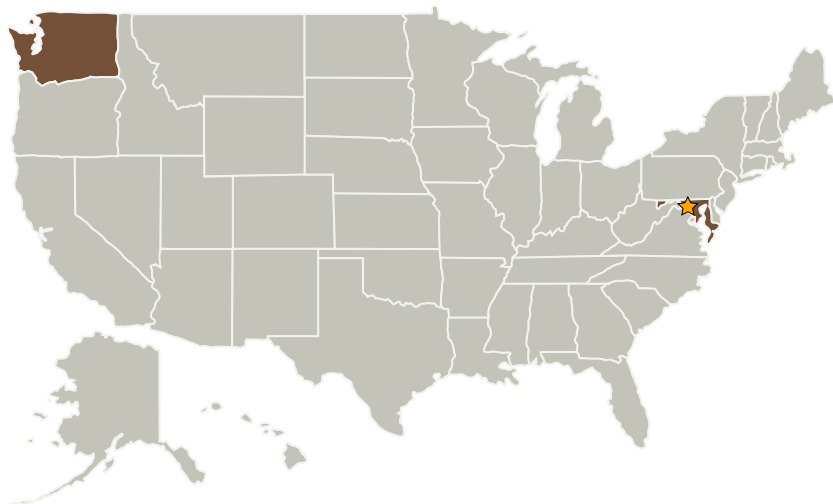
Completed Technology Project (2007 - 2007)



Project Introduction

Light propagation in the sea and the consequent remote sensing signals seen by aircraft and spacecraft is fundamentally governed by the inherent optical properties (IOP) of the water, which is known to vary in all 4 dimensions, i.e. space and time. No versatile, non-moving full 0-pi volume scattering function sensing system exists at this time, although this company has developed an all solid state small forward angle system, LISST (The system was originally designed as a particle size distribution sensor, LISST-100; it would continue to have this capability), and a (moving-parts)scanning non-autonomous system was developed by a Ukrainian group. At the current time, this PI is building a backscatter system with ONR support to observe the Mueller matrix from 177-180 degrees. Intermediate angles are not reachable. In this proposal, I will build an all-solid state system combining the forward and backward angles, with side angles. We use an innovative solution to cover the wide dynamic range of the VSF. Along with VSF, the system shall measure beam attenuation (hence the phase function), and temperature and depth as auxiliary measurements. It will be battery operated and will have on-board data storage. At the heart of the innovation is a relatively new laser, novel drift-compensated detector set, and an innovative detector placement to streamline the system.

Primary U.S. Work Locations and Key Partners



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Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Center / Facility:

Goddard Space Flight Center (GSFC)

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

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Organizations Performing Work	Role	Type	Location
★Goddard Space Flight Center(GSFC)	Lead Organization	NASA Center	Greenbelt, Maryland
Sequoia Scientific, Inc.	Supporting Organization	Industry	Bellevue, Washington

Primary U.S. Work Locations

Maryland	Washington
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Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Technology Areas

Primary:

- TX05 Communications, Navigation, and Orbital Debris Tracking and Characterization Systems
 - └ TX05.4 Network Provided Position, Navigation, and Timing
 - └ TX05.4.1 Timekeeping and Time Distribution